

REMARKS

Claims 1-22 were pending in this application.

Claims 1-22 have been rejected.

Claims 1-3, 8-12, 15, 17-19, and 22 have been amended as shown above.

Claims 1-22 remain pending in this application.

Reconsideration and full allowance of Claims 1-22 are respectfully requested.

I. REJECTION UNDER 35 U.S.C. § 112

The Office Action rejects Claims 1-22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention.

Regarding Claim 1, the Office Action asserts that the terms “bias,” “cushion,” and “increment” are unclear. Claim 1 has been amended to recite that the bias identifies “a difference between an actual value of the sample and an expected value of the sample.” Moreover, the Applicant’s specification notes that a “cushion” represents a reduced amount of the bias that is included in a filtered output signal. (*Application, Pars. [029] and [031]*). The Applicant’s specification also notes that an “increment” represents a mismatch between an expected change and an actual change in the samples of a signal being filtered. (*Application, Par. [034]*). In light of the specification, these terms would be easily understandable by one skilled in the art.

The Office Action also asserts that Claim 1 lacks an essential step, namely “those that

process data to provide the ‘expected value’ and the ‘portion of the bias’ for the outputting step.” The Applicant has amended Claim 1 to recite “identifying a portion of the bias based at least partially on a size of the cushion.” Moreover, the Applicant respectfully notes that Claim 1 need not recite the actual processing steps used to determine the “expected value” in order for Claim 1 to be complete.

Similar rejections have been made to Claims 10 and 17, which have been resolved in a similar manner.

The Office Action asserts that the phrase “the samples” in Claim 2 is unclear. The Applicant has amended Claim 2 to resolve this informality. Similar rejections have been made to Claims 11 and 18, which have been resolved in a similar manner.

The Office Action asserts that the phrase “signal direction” in Claims 5, 13, and 20 is unclear. The phrase “signal direction” in the Applicant’s specification refers to the direction of travel of a signal (i.e. whether the signal is increasing or decreasing). (*See, e.g., Pars. [043], [044], and [052]*). In particular, the Applicant’s specification notes that normal random noise “varies widely from one extreme to the other” and “does not maintain a consistent signal direction.” (*Par. [052]*). In light of the specification, this phrase would be easily understandable by one skilled in the art.

The Office Action asserts that the phrases “elliptical weighting,” “diamond weighting,” “first maximum value along an axis representing the increment,” “second maximum value along an axis representing the cushion,” and “axis” in Claims 6, 14, and 21 are unclear. However, Figures 3A and 3B clearly illustrate (and their associated description clearly describes) the

elliptical and diamond weighting, as well as the use of the two axes. The Office Action does not explain why these phrases in Claims 6, 14, and 21 are unclear, particularly in light of the express teachings in the Applicant's specification.

Accordingly, the Applicant respectfully requests withdrawal of the § 112 rejection.

II. DOUBLE PATENTING REJECTION

The Office Action rejects Claims 1-22 under the judicially created doctrine of obviousness type double patenting in view of Claims 1-22 in U.S. Patent No. 7,156,116 (the "116 patent").

The Office Action appears to use an improper standard in making the double patenting rejection. The Office Action states that the claims in this application and the claims in the '116 patent "are not identical" but they are "not patentably distinct from each other because they are claiming a common cushion filter."

The fact that the claims in this application and the claims in the '116 patent are "claiming a common cushion filter" is not adequate to make a double patenting rejection. The issue is whether the claims in this application are "anticipated by, or an obvious variation of, the invention" defined by the claims in the '116 patent. (*See, e.g., MPEP § 804(II)(B)(1)*). The fact that both applications are "claiming a common cushion filter" is inadequate. The Patent Office must show that the claims in this application are anticipated or rendered obvious by the claims in the '116 patent. The Patent Office has not made and cannot make this showing.

Accordingly, the Applicant respectfully requests withdrawal of the double patenting

rejection.

III. REJECTION UNDER 35 U.S.C. § 101

The Office Action rejects Claims 1-22 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically, the Office Action asserts that the claims do not produce a “useful, concrete and tangible” result.

The Official Gazette notice dated November 22, 2005 and MPEP § 2106 specifically describe how a claimed invention must produce a useful, concrete, and tangible result. A claimed invention is “useful” when it satisfies the utility requirement of § 101. In this application, there is no rejection of the claims as lacking utility under § 101. As a result, Claims 1-22 produce a “useful” result.

A claimed invention produces a “concrete” result when it can produce a result that is substantially repeatable or that substantially produces the same result again. There is no assertion by the Patent Office that the claimed invention in this application produces a result that is unpredictable or unrepeatable. There is also no assertion by the Patent Office that the claimed invention in this application fails to substantially produce the same result again. As a result, Claims 1-22 produce a “concrete” result.

A claimed invention produces a “tangible” result when a claim sets forth a “practical application” of a § 101 judicial exception to produce a “real-world result.” The “tangible” requirement does not require that a claim be tied to a particular machine or apparatus or that a

claim operate to change articles or materials. Here, Claims 1-22 clearly set forth a practical application (the filtering of a signal) that produces a real-world result (a filtered signal).

The Patent Office states that the result of the claimed invention is “merely numerical values without a practical application.” However, Claims 1, 10, and 17 all recite receiving a sample of a signal being filtered, performing various steps or functions, and outputting an expected sample combined with a portion of a bias value. Moreover, Claim 10 specifically recites a filter, which is a real-world physical component. The Patent Office cannot possibly assert that all digital filters and all other filters for filtering signals are non-statutory.

Claims 1, 10, and 17 are clear – a sample of a signal is received, various steps or functions are performed, and an expected sample value combined with a portion of a bias value is output. This represents a practical application that produces a real-world result. Moreover, the Applicant is not required to limit the claimed invention to just use in a process control system for controlling a valve. Claims 1-22 clearly set forth a practical application (the filtering of a signal) that produces a real-world result (a filtered signal) as they currently stand.

Accordingly, the Applicant respectfully requests withdrawal of the § 101 rejection.

IV. REJECTION UNDER 35 U.S.C. § 102

The Office Action rejects Claims 1, 3, 8-10, 12, 15-17, 19, and 22 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,536,853 to Kawamoto et al. (“*Kawamoto*”). This rejection is respectfully traversed.

A prior art reference anticipates a claimed invention under 35 U.S.C. § 102 only if every

element of the claimed invention is identically shown in that single reference, arranged as they are in the claims. (*MPEP* § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990)). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. (*MPEP* § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985)).

Claims 1, 10, and 17 have been amended to recite that a “bias” associated with a sample of a signal being filtered is identified, where the bias identifies “a difference between an actual value of the sample and an expected value of the sample.” Claims 1, 10, and 17 have also been amended to recite identifying “a portion of the bias” and outputting “the expected value of the sample combined with the portion of the bias.” These amendments are supported in the originally-filed disclosure, such as in Figure 5 and paragraphs [029] and [063].

Kawamoto recites a musical instrument having a wave generator. (*Abstract*). A ROM 6 contains wave data $f_{(x_i,0)}$, and a ROM 5 contains differential samples $\Delta f_{(x_i,0)}$. (*Col. 3, Line 50 – Col. 4, Line 10*). A multiplier 7 multiplies the differential samples by j (a partial address), and a divider 8 divides the output of the multiplier 7 by M . (*Col. 4, Lines 11-20*). An adder 9 adds the wave data to the output of the divider 9 to produce the values specified in Equation (8), where the output of the adder 9 represents an approximation of a sinusoidal wave. (*Col. 4, Lines 23-35*). Collectively, the ROM 5, multiplier 7, divider 8, and adder 9 perform linear interpolation. (*Col. 4, Lines 46-48*). The ROM 5 could also be replaced by a subtractor that identifies differences between adjacent samples. (*Col. 4, Lines 48-50*).

Kawamoto appears to operate by summing a wave sample $f_{(x_i,0)}$ with a portion of the

difference between adjacent wave samples. The portion of the difference between adjacent wave samples appears to be defined as $j/M * (f_{(x_{i+1},0)} - f_{(x_i,0)})$. In other words, *Kawamoto* simply sums a wave sample with a portion of the difference of that wave sample and an adjacent wave sample.

Claims 1, 10, and 17 recite that a bias identifies “a difference between an actual value of [a] sample and an expected value of the sample.” Claims 1, 10, and 17 also recite that the “expected value” of the sample is combined with a “portion” of the bias. In other words, a portion of the difference between actual and expected values of a sample is added to the expected value of the sample. This is not disclosed in the cited portions of *Kawamoto*. *Kawamoto* does not determine a bias that represents “a difference between an actual value of [a] sample and an expected value of the sample.” *Kawamoto* also does not combine a portion of the bias with an “expected value” of a sample.

For these reasons, *Kawamoto* fails to anticipate the Applicant’s invention as recited in Claims 1, 10, and 17 (and their dependent claims). Accordingly, the Applicant respectfully requests withdrawal of the § 102 rejection and full allowance of Claims 1, 3, 8-10, 12, 15-17, 19, and 22.

SUMMARY

The Applicant respectfully asserts that all pending claims in this application are in condition for allowance and respectfully requests full allowance of the claims.


If any issues arise or if the Examiner has any suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@munckbutrus.com*.

The Commissioner is hereby authorized to charge any fees connected with this communication (including any extension of time fees) or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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